SECTION 09 54 26
LINEAR WOOD CEILINGS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Linear wood grille ceiling panels and linear wood plank ceiling panels for concealed suspension system.

B. Concealed metal suspension system.

C. Wire hangers, seismic restraints, fasteners, main runners, wall angle moldings, trims and accessories.

1.02 RELATED WORK

A. Color, pattern, and location of each type of wood panel: Section 09 06 00, SCHEDULE FOR FINISHES.

B. Gypsum wallboard: Section 09 29 00, GYPSUM WALLBOARD.

C. Acoustical ceilings: Section 09 51 00, ACOUSTICAL CEILINGS.

D. Seismic restraint: Section 13 05 41, SEISMIC RESTRAINT REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS.

E. Fire sprinklers: Division 21, FIRE SUPPRESSION.

F. Mechanical work: Division 23, HVAC.

G. Electrical work: Division 26, ELECTRICAL.

1.03 QUALITY ASSURANCE

A. Qualifications:
   1. Approval required of products or service of proposed manufacturer, suppliers and installers, and shall be based upon submission by Contractor of certification that:
      a. Manufacturer regularly and presently, manufactures and installs linear wood ceiling systems and related accessories as one of its principal products and has a record of successful in-service performance.
      b. Accessories required for linear wood ceiling systems shall be manufacturer's standard or other systems compatible with linear wood ceiling system manufacturer's material. Items shall be of materials and construction which shall provide desired functional service.
   2. Installer Qualifications: The installer shall be a firm with a minimum of two years of successful experience in installation of products with similar requirements and certified and approved by the manufacturer.

B. Single-Source Responsibility: Provide each type of linear wood ceiling panels and suspension system from a single source, with in-house Shop Drawings capabilities, in-house assembly and finishing capabilities, and with resources to provide products of consistent quality in appearance and physical properties.

C. Fire Performance Characteristics: Identify ceiling components with appropriate markings of applicable testing and inspection organizations.
   1. Surface Burning Characteristics: As follows, tested per ASTM E84 and complying with ASTM E1264 for Class A products.
      a. Flame Spread: 25 or less.
      b. Smoke developed: 50 or less.
   2. HPVA (Hardwood Plywood and Veneer Association) certification and audit program per ASTM E84 tunnel test.

D. Woodworking Standards: Manufacturer must comply with specified provisions of Architectural Woodworking Institute quality standards.

E. Coordination of Work: Coordinate layout and installation of linear wood ceiling units and suspension system components with other work supported by, or penetrating through, ceilings, including light fixtures, HVAC equipment, fire-suppression system components (if any), and partition system (if any):
   1. Sprinkler Heads and Light Fixtures: Locate sprinkler heads and light fixtures at center of panel width.
   2. HVAC Air Outlets and Inlets: Shall be planned to occur within center of panel systems or provide for equal distance on each side parallel to length of panels.

F. Seismic Design:
   1. Design suspension system for seismic considerations under direct supervision of Professional Structural Engineer experienced in design of this work and licensed in state of California.
   2. Design in accordance with ASCE/SEI 7 and VA H-18-8, Seismic Design Requirements.

1.04 SUBMITTAL

A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

B. Manufacturer's Literature and Data:
   1. Ceiling suspension system, each type, showing complete details of installation.
   2. Linear wood ceiling panel, each type.
   3. Storage and handling requirements and recommendations.
   4. Installation instructions.
   5. Maintenance instructions.

C. Shop Drawings:
   1. Submit complete composite fabrication, and installation shop drawings including associated components. Show locations of items which are to be coordinated with, or supported by the ceilings.
   2. Identify panel sections, edge trim, lighting trim, air diffuser section and trim, sprinkler head locations and trim, other component parts.
   3. Layout and installation details, including relation to adjacent work such as walls and bulkheads.
   4. Composite reflected ceiling plan at 1/4-inch scale, showing location of all accessories, mechanical and electrical components. Indicate the following:
      a. Joint patterns.
      b. Ceiling suspension members.
      c. Method of attaching hangers to building structure.

d. Ceiling-mounted items including light fixtures, air outlets and inlets, speakers, sprinkler heads, access panels, etc. Special moldings at wall, column penetrations, and other junctures with adjoining construction.

5. Detail sections of typical composite members, at wall surfaces, mechanical diffusers and grilles, sprinkler heads, and light fixtures.
6. Provisions for expansion and contraction.
7. Anchors and reinforcements.

D. Samples:
1. Minimum 12-inch x 18-inch samples of specified wood panels of each type; 8-inch long samples of exposed wall molding and suspension system, including main runner. Where finishes involve normal color and texture variations, include sample sets showing the range of variations expected.
2. Acoustical backing.
3. Accessories of each type.

E. Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Panel assemblies shall be delivered to the project site in original, unopened packages.

B. Store ceiling components in a dry interior location in their cartons prior to installation to avoid damage. Store cartons in a flat, horizontal position. The protectors between the panels should not be removed until installation.

C. Do not store in unconditioned spaces with humidity greater than 55 percent or lower than 25 percent relative humidity and temperatures lower than 50 degrees F or greater than 85 degrees F. Panels must not be exposed to extreme temperatures, for example, close to a heating source or near a window with direct sunlight.

D. Handle ceiling units carefully to avoid chipped edges or damage to units in any way.

1.06 APPLICABLE PUBLICATIONS

A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in the text by basic designation only.

B. American Society for Testing and Materials (ASTM):
A641/A641M-09a(14)....Zinc-coated (Galvanized) Carbon Steel Wire
A653/A653M-13 .....Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-coated (Galvannealed) by the Hot-Dip Process
A1008/A1008M-13 .....Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Allow and High Strength Low-Alloy with Improved Formability
C423-09a .....Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
C635/C635M-13a.....Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings
C636/C636M-13.....Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels
E84-14.....Surface Burning characteristics of Building Materials

E580/E580M-14 ..... Application of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Requiring Seismic Restraint
E1264-08e1..... Classification for Acoustical Ceiling Products

C. AWI (QSI): Architectural Woodwork Quality Standards Illustrated

D. Ceilings & Interior Systems Construction Association (CISCA):
CISCA Seismic Zone (0-2) (3-4) Ceilings and Interior Systems Construction Association Guidelines for Seismic Restraint for Direct Hung Suspended Ceiling Assemblies.

1.07 PROJECT CONDITIONS

A. Do not start installation of wood panel ceilings unless the following conditions are met:
1. All wet-work in spaces is completed and dry, work above ceilings is complete.
2. Temperature conditions between 60 degrees F and 80 degrees F.
3. The building is enclosed and HVAC systems are functioning and will be in continuous operation.
4. Relative humidity should not fall below 25 percent or exceed 70 percent.

B. Allow wood veneer ceiling materials to reach room temperature and have stabilized moisture content for a minimum of 72 hours before installation per AWI standards.

1.08 WARRANTY

A. Linear wood ceiling and installation subject to terms of "Warranty of Construction" FAR clause 52.246-21, except that warranty period is extended to two years.

PART 2 - PRODUCTS

2.01 LINEAR WOOD CEILING PANELS

A. Linear Wood Grille Ceiling Panels, Type LWC-1:
1. Species: As specified in Section 09 06 00, SCHEDULE FOR FINISHES.
2. Member Size: As specified in Section 09 06 00, SCHEDULE FOR FINISHES.
3. Edge Profile: Square.
4. Reveal: As shown on Drawings.
5. Assembly Style: Cross piece backer.
6. Panel Size: As specified in Section 09 06 00, SCHEDULE FOR FINISHES.
7. Fire Rating: Class A.
8. Finish: As specified in Section 09 06 00, SCHEDULE FOR FINISHES.
9. Reveal Scrim: Black reveal scrim.

B. Linear Wood Plank Ceiling Panels, Type LWC-2:
1. Species: As specified in Section 09 06 00, SCHEDULE FOR FINISHES.
2. Member Size: As specified in Section 09 06 00, SCHEDULE FOR FINISHES.
3. Edge Profile: Square with matching edge banding.
4. Reveal: As shown on Drawings.
5. Assembly Style: Cross piece backer.
6. Panel Size: As specified in Section 09 06 00, SCHEDULE FOR FINISHES.
7. Fire Rating: Class A.
8. Finish: As specified in Section 09 06 00, SCHEDULE FOR FINISHES.
9. Reveal Scrim: Black reveal scrim.

C. Accessories:
1. Wood Biscuits, for joining and aligning plants end to end.

2. Edge Banding for Field-Modified Panels: Manufacturer's standard pre-finished pressure sensitive adhesive banding, color to match ceiling panels color.
3. Acoustic Liner: 1 1/2-inch thick fiberglass infill panel, black color.
4. Wood Trim: Solid wood stock, species and color to match adjacent wood ceiling panels.

2.02 METAL SUSPENSION SYSTEMS

A. Metal T-Grid Suspension System: Provide interior metal heavy duty 15/16-inch suspension T-Grid system using main runners, cross-tees, wall angle of types, structural classifications complying with ASTM C635.
1. Structural Classification: ASTM C 635 Heavy Duty.
2. Color: Black.

B. Attachment Devices: Size for three times design load indicated in ASTM C635, Table 1, Direct Hung unless otherwise noted.

C. Wire, Braces, Ties, Hanger Rods, and Hangers: ASTM A641/A641M, Class 1 zinc coating, soft temper, pre-stretched, with a yield stress load of at least time three design load, but not less than 12 gauge.

D. Accessories and Edge Moldings:
1. Linear Splices, for splicing planks together end-to-end.
2. Wall Molding: 1 1/2-inch x 1 1/2-inch, Black color.
3. Provide t-bar hooks, wood screws, safety cables, support hangers and accessories as necessary for complete installation of wood panel ceiling systems.

PART 3 - EXECUTION

3.01 EXAMINATION

A. General: Examine substrates and structural framing to which ceilings attach or abut, with installer present, for compliance with requirements specified in this and other sections that affect ceiling installation and anchorage. Do not proceed with installation until unsatisfactory conditions have been corrected.

B. Do not proceed with installation until all wet work such as concrete and painting has been completed and thoroughly dried out.

C. Proper design for both supply air and return air, maintenance of HVAC filters and building interior space are essential to minimizing soiling. Before starting the HVAC system, make sure supply air is properly filtered and the building interior is free of construction dust.

3.02 PREPARATION

A. Measure each ceiling area and establish layout of linear wood panels to balance border widths at opposite edges of each ceiling. Avoid use of less than half width panels at borders, and conform to the layout shown on reflected ceiling plans in accordance with approved shop drawings. Coordinate panel layout with mechanical, fire protection and electrical fixtures.

3.03 INSTALLATION

A. Install suspension system and panels in compliance with ASTM C636; CISCA "Ceiling Systems Handbook", Seismic Guidelines; approved shop drawings and in accordance with the manufacturer's installation instructions.

B. Suspend ceiling hangers from building structural members and as follows:
   1. Install hangers plumb, free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers where required to avoid obstructions and offset resulting horizontal forces by bracing, counter splaying, or other equally effective means.
   2. Where width of ducts and other construction within ceiling plenum produces hanger spacing that interfere with location of hangers at spacing required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.
   3. Secure hangers to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices that are secure and appropriate for structure to which hangers are attached as well as for type of hanger involved, and in a manner that will not cause them to deteriorate or fail because of age, corrosion, and elevated temperatures.
   4. Space hangers not more than 1200 mm (48 inches) on center along each member supported directly from hangers, unless otherwise shown.

C. Install with undamaged edges and fitted accurately to suspension system runners and edge moldings.

D. Scribe and cut wood panel units for accurate fit at borders and at interruptions and penetrations by other work through ceilings.

E. Align joints in adjacent courses to form uniform, straight joints parallel to room axis in both directions, unless otherwise-shown.

F. Install acoustical backing at right angle to panels so that they do not hang unsupported.

G. Cut panel edges that are exposed to view will have to be treated to look like factory edges. Apply pre-finished peel and stick edge banding at all cut panel edges.

3.04 ADJUSTING AND CLEANING

A. Replace damaged and broken panels.

B. Clean exposed surfaces of ceiling panels, including trim, edge moldings, and suspension members. Comply with manufacturer's instruction for cleaning and touch up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

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